

Improving Primary Care Providers' Knowledge about TB & Latent Tuberculosis Infection

For the intervention discussed in this document, go to <http://ethnomed.org/clinical/tuberculosis/firland/screening-for-tb-primary-care-tools-for-the-management-of-tb>

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Main Objectives

- ❖ To determine TB knowledge, attitudes, beliefs, and practices of primary care clinicians who serve foreign-born populations at risk for TB
- ❖ To identify practice features that facilitate or obstruct the management of latent TB
- ❖ To determine if an educational intervention increases adherence to CDC recommendations

Study Sites

6 regions, 7 sites—

- ❖ Honolulu
- ❖ Seattle
- (FAPWA, HMC)
- ❖ San Francisco
- ❖ Orange County
- ❖ Dallas-Fort Worth
- ❖ Boston



Target Audiences

Clinicians serving
Mexicans,
Filipinos,
Vietnamese,
Chinese



Eligibility Criteria

- ❖ Primary Care Providers: family practice, internal medicine, pediatrics, women's healthcare
- ❖ $\geq 25\%$ of patients are foreign born
- ❖ ≥ 3 years of clinical experience
- ❖ ≥ 1 year experience at current practice site
- ❖ No employment with Public Health

Phase 1: Qualitative Assessment

- ❖ January, 2005 - March, 2006
- ❖ Assessed physicians & other health care providers' knowledge, attitudes, practices, and practice resources regarding TB and LTBI evaluation and treatment

Methods

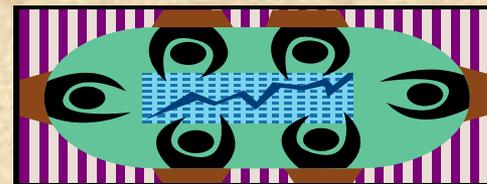
Focus Group I
Created topic lists for key informant interviews



Key Informant Interviews were transcribed, coded and analyzed



Focus Group II
Confirmation and correction of findings. Group creates model to reflect local conditions.



Phase 1– Conclusions

- ❖ Private physicians lack resources for LTBI testing and treatment, and are disinclined to test and treat for multiple reasons.
- ❖ Community clinics are more apt to do LTBI testing and treatment as part of preventive care
- ❖ CDC guidelines sometimes impractical
- ❖ Private sector would like more support from TB programs

Phase 2—Methods

- 10-14 Primary Care Providers from each site
- A pre-intervention survey of 124 items
 - 30 demographic items
 - 15 epidemiological items
 - 33 definition, testing & treatment items
 - 56 attitude items
- 1 hour didactic intervention on latent TB management among the foreign born delivered by the regional TB control officer
- A post-intervention survey of 105 items delivered 2-4 weeks following the intervention
 - 15 epidemiological items
 - 33 definition, testing & treatment items
 - 56 attitude items
 - 11 follow-up questions

Results: Demographics

N= 90

Age: 47.5 years, 11.1 S.D

Gender: 47.8% female

Age at Immigration: (N=58) 24.7 years, 12.4 S.D.

Country of Origin:

USA: 32 China: 14

Philippines: 8 Vietnam: 20

Taiwan: 3 Other: 13

Results: Demographics

Job Title:

MD	66	(74.5%)
DO	5	(5.5%)
ARNP	8	(8.8%)
PA	4	(4.4%)
RN	4	(4.4%)

Years in current position: 17.43, 10.4 S.D.

Results: Demographics

	Frequency	%	Cumulative %
Private: Solo	30	33.7	33.7
Private 2-4 MD	9	10.1	43.8
Private: 5+	2	2.2	46.1
Comm. Clinic	33	37.1	83.1
Hosp. Affiliated	12	13.5	96.6
Other	3	3.4	100
Total	89	96.7	100

Results: Demographics

Residency:

Internal Medicine	30	(41.7%)
Pediatrics	10	(13.9%)
Family Medicine	25	(34.7%)
Other	7	(9.7%)

Results: Demographics

TB Training:

No	40	(44.9%)
Yes	49	(55.1%)
Med School	13	(24.1%)
Residency	5	(9.3%)
CDC	3	(5.6%)
Cont. Ed	5	(9.3%)
Other	2	(3.7%)
Multiple	25	(46.3%)

Results: Demographics

Pts/ 8 hr day 20.23 , 5.09 S.D.

% Time in Pt Care 70.68%, 26.2 S.D.

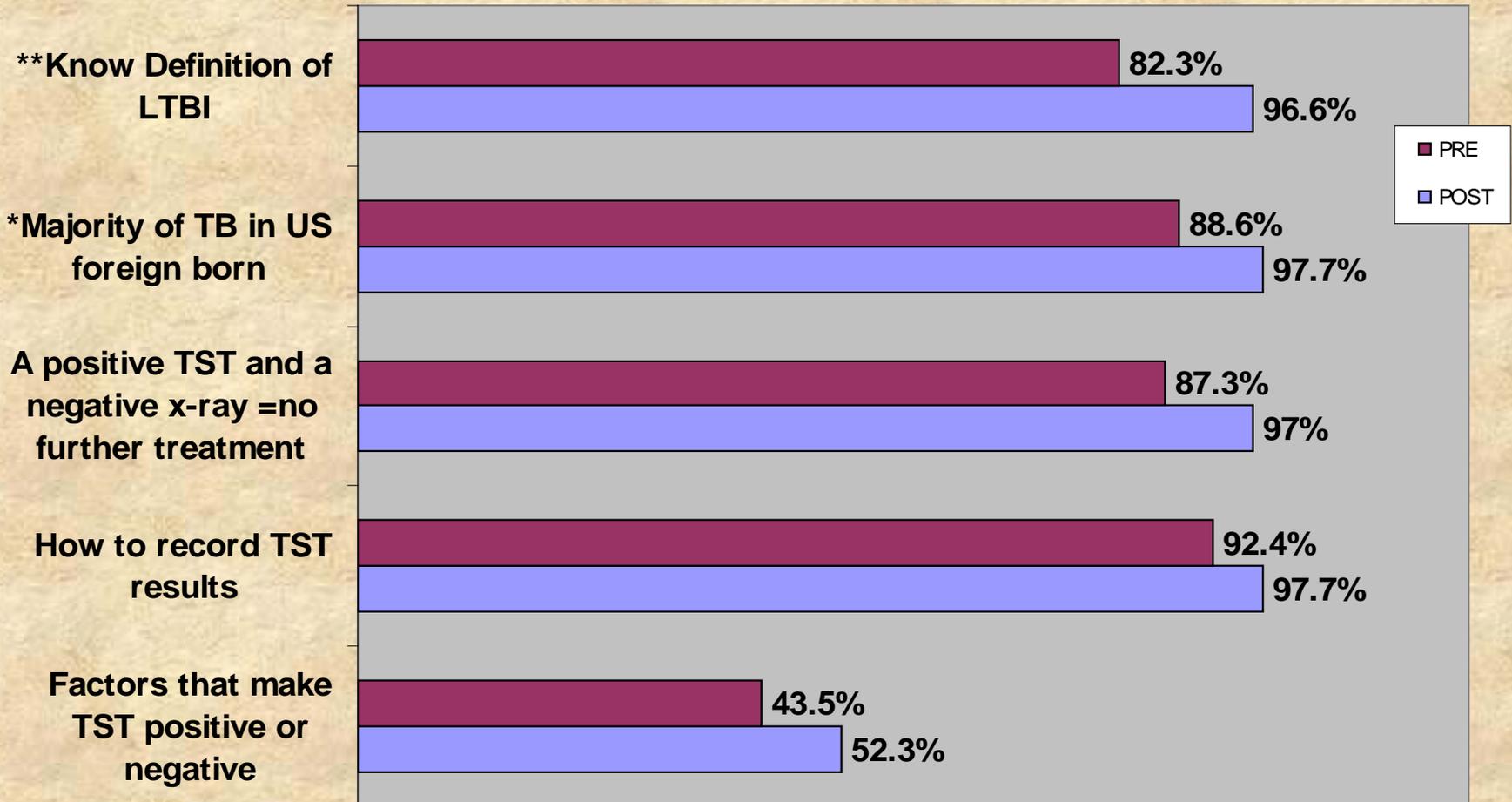
% Foreign Born Patients 60.3%, 28.4 S.D.

PPDs/month 19.7, 17.7 S.D.

% PPD + 28.3% , 26.8 S.D.

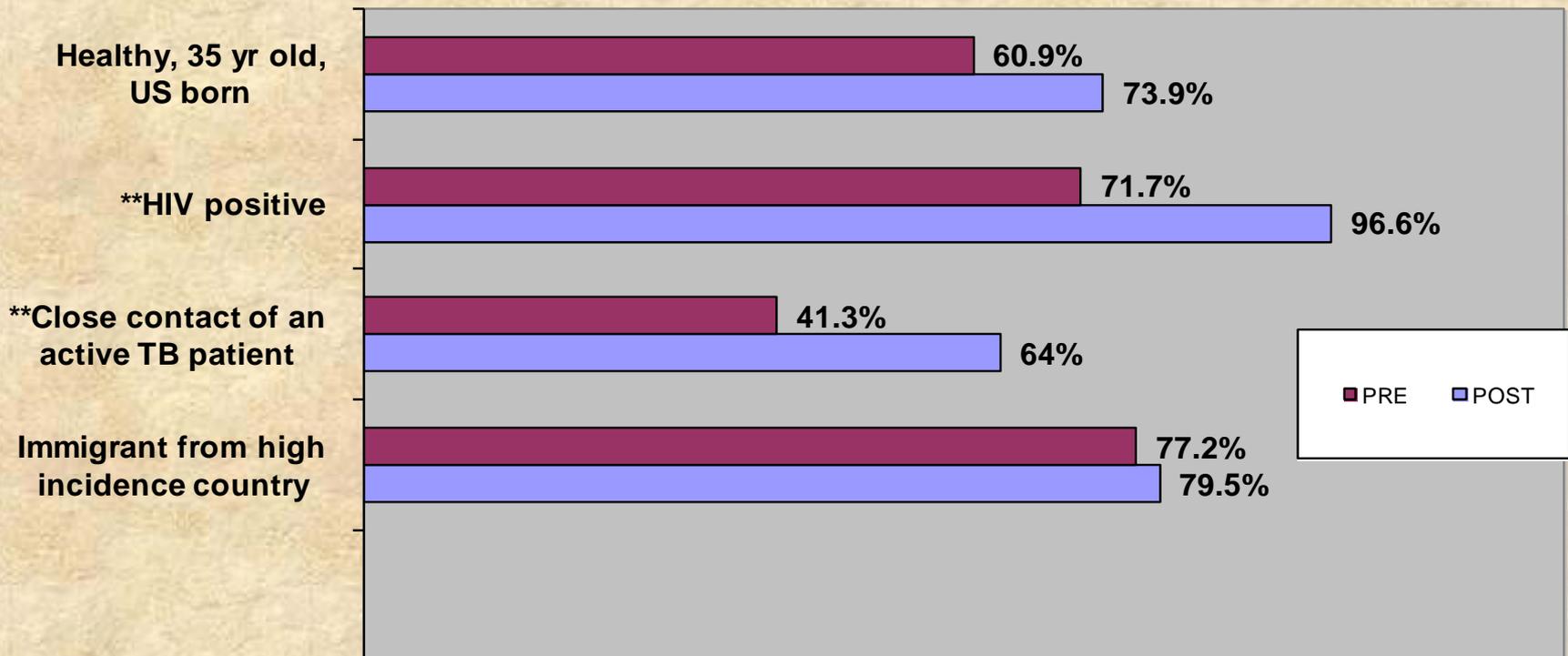
Results: Knowledge Questions: Definitions & TST

% Giving Correct Answer



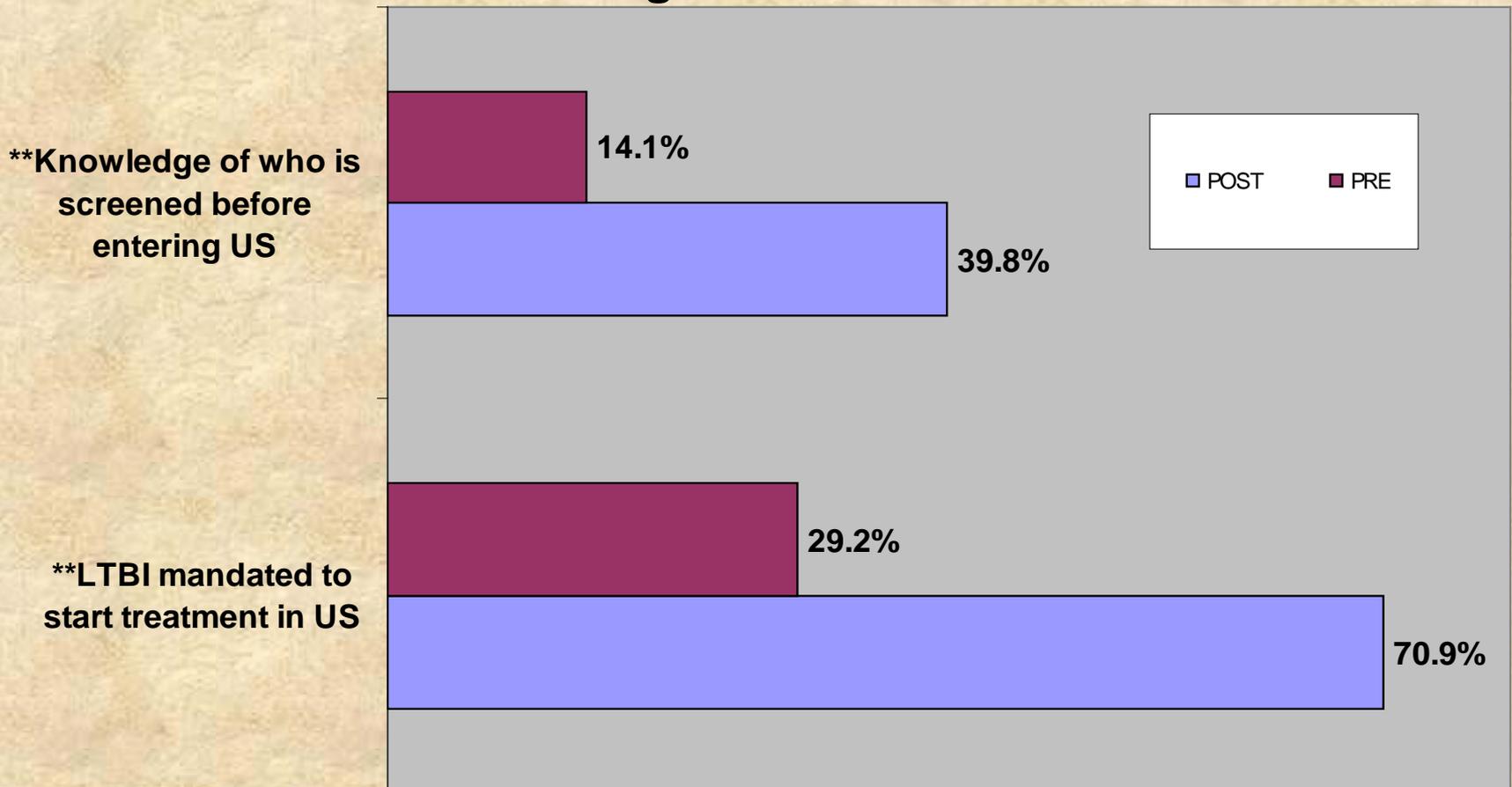
Results: Knowledge Questions: Interpreting TST Results

% Giving Correct Answer

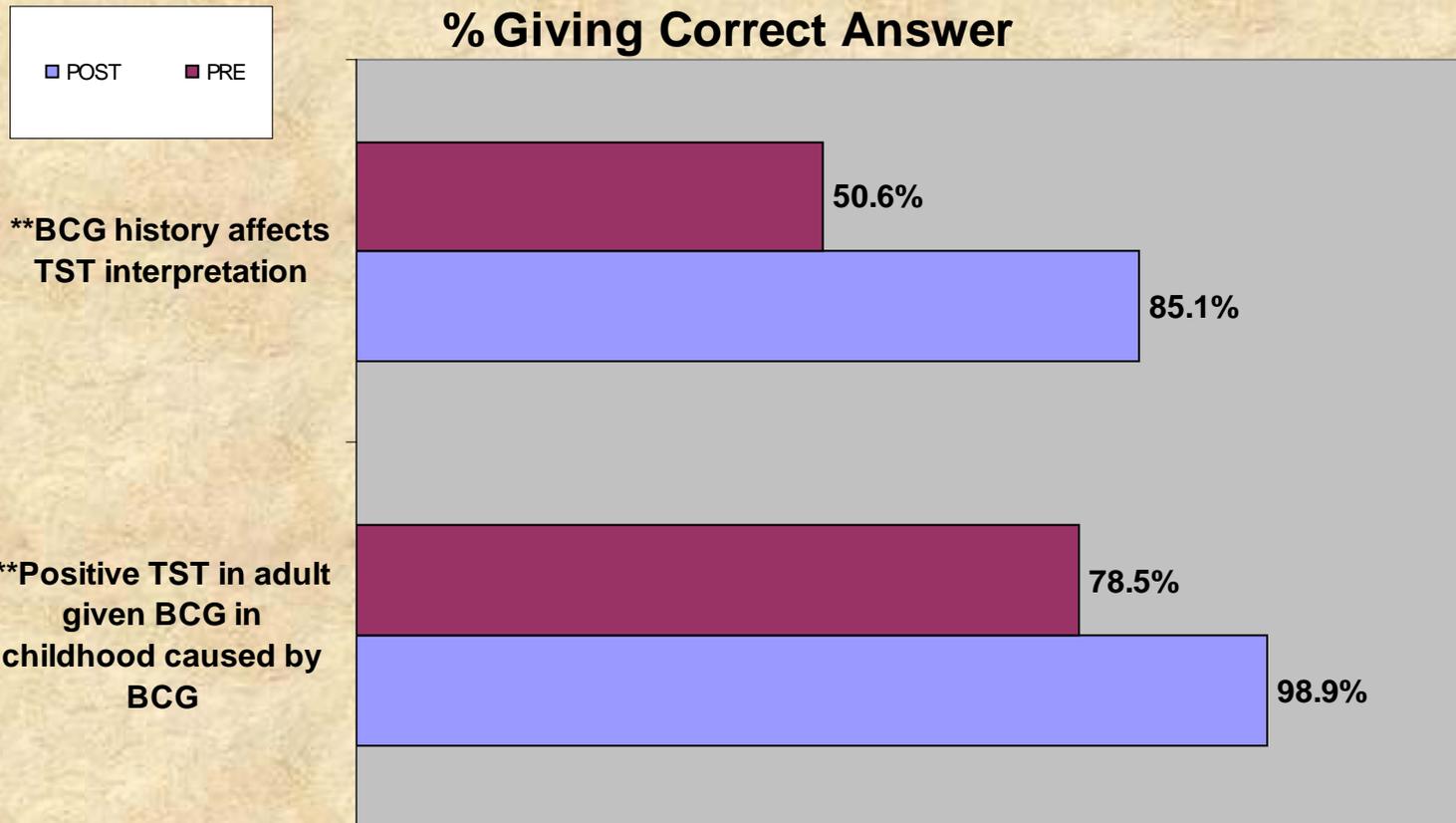


Results: Knowledge Questions: Immigration Policy & TB

% Giving Correct Answer

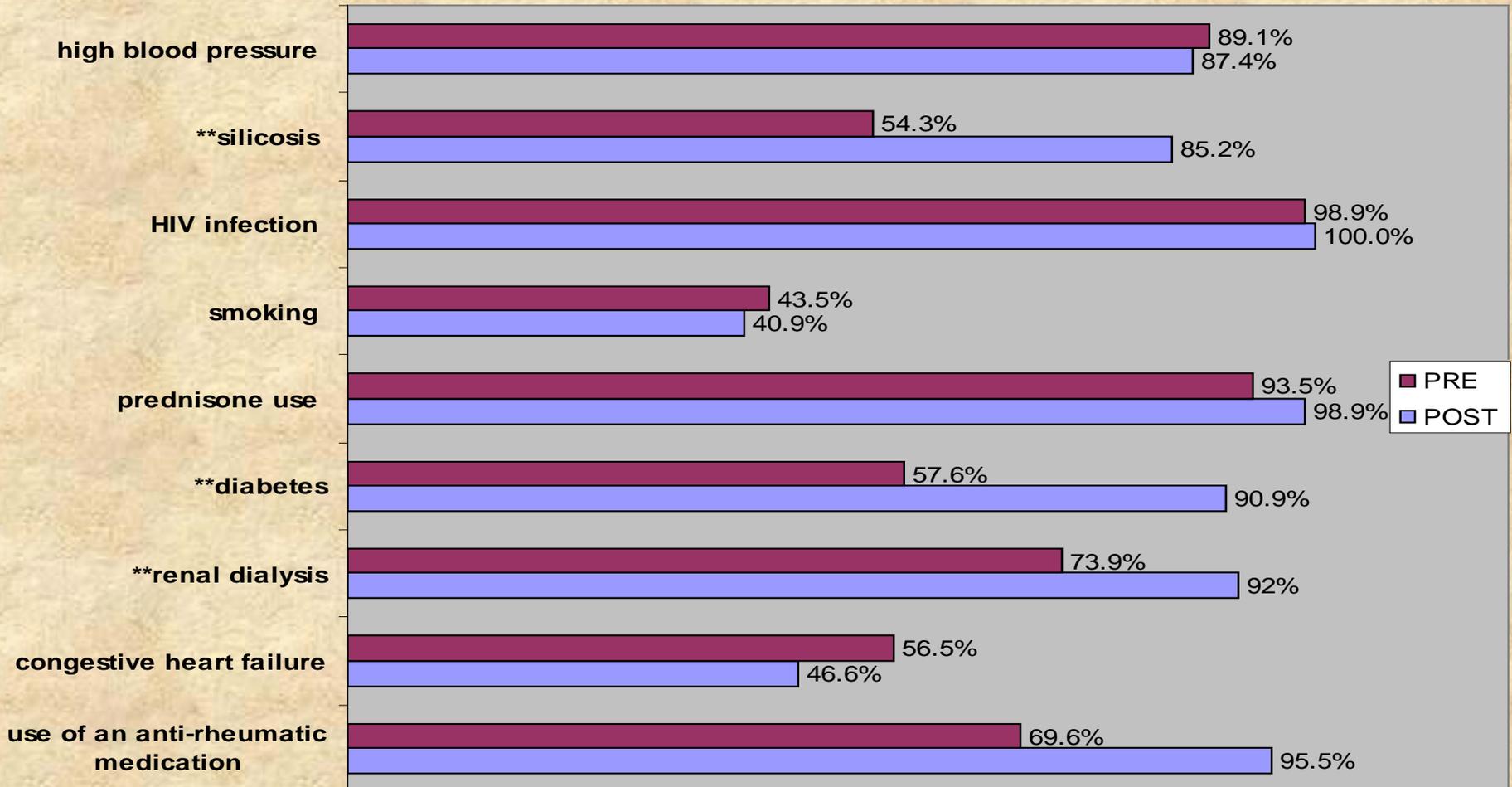


Results: Knowledge Questions: BCG Vaccination



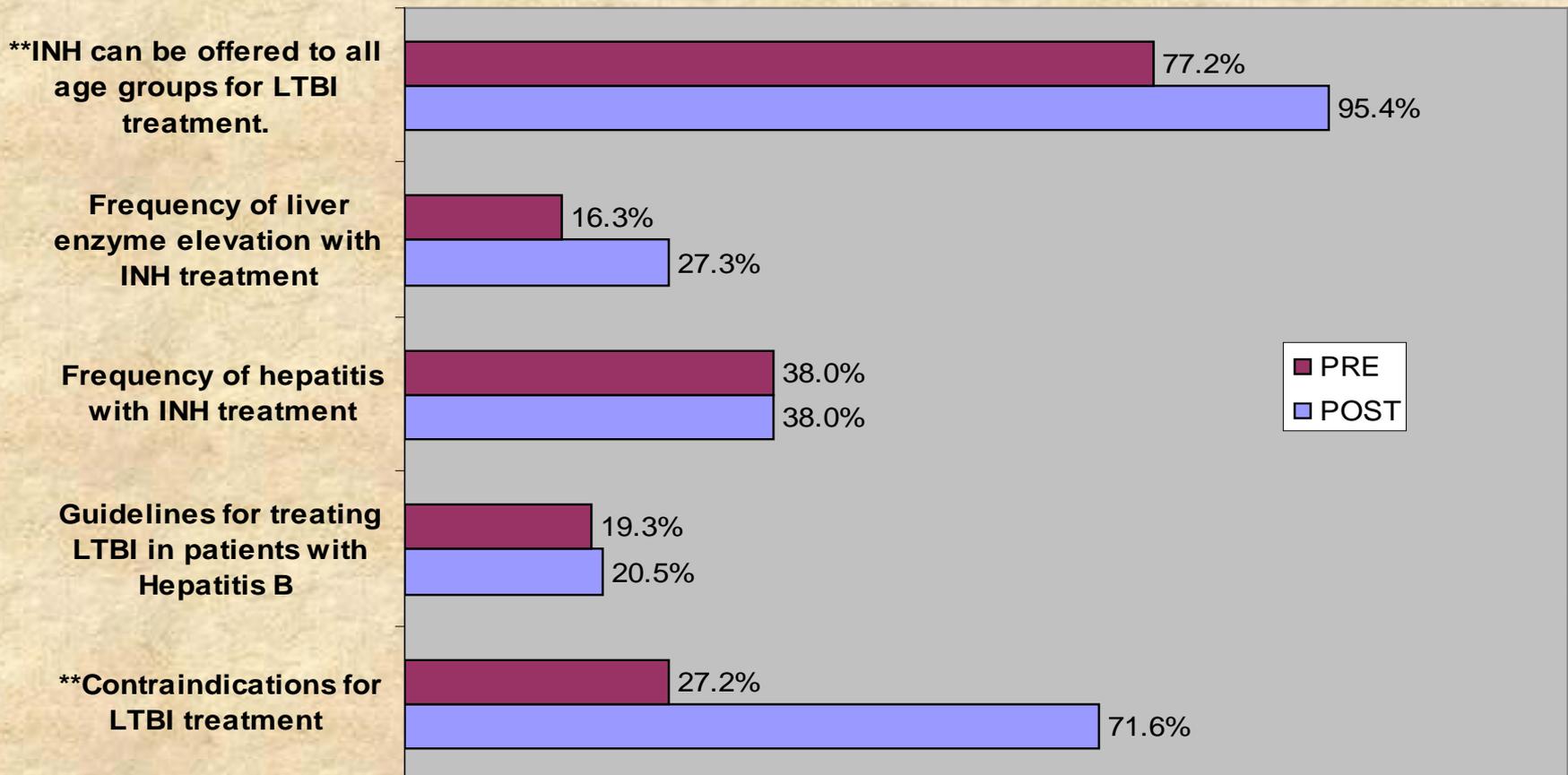
Results: Knowledge Questions: Conditions that Increase Risk of Progression from LTBI to Active TB

% Giving Correct Answer



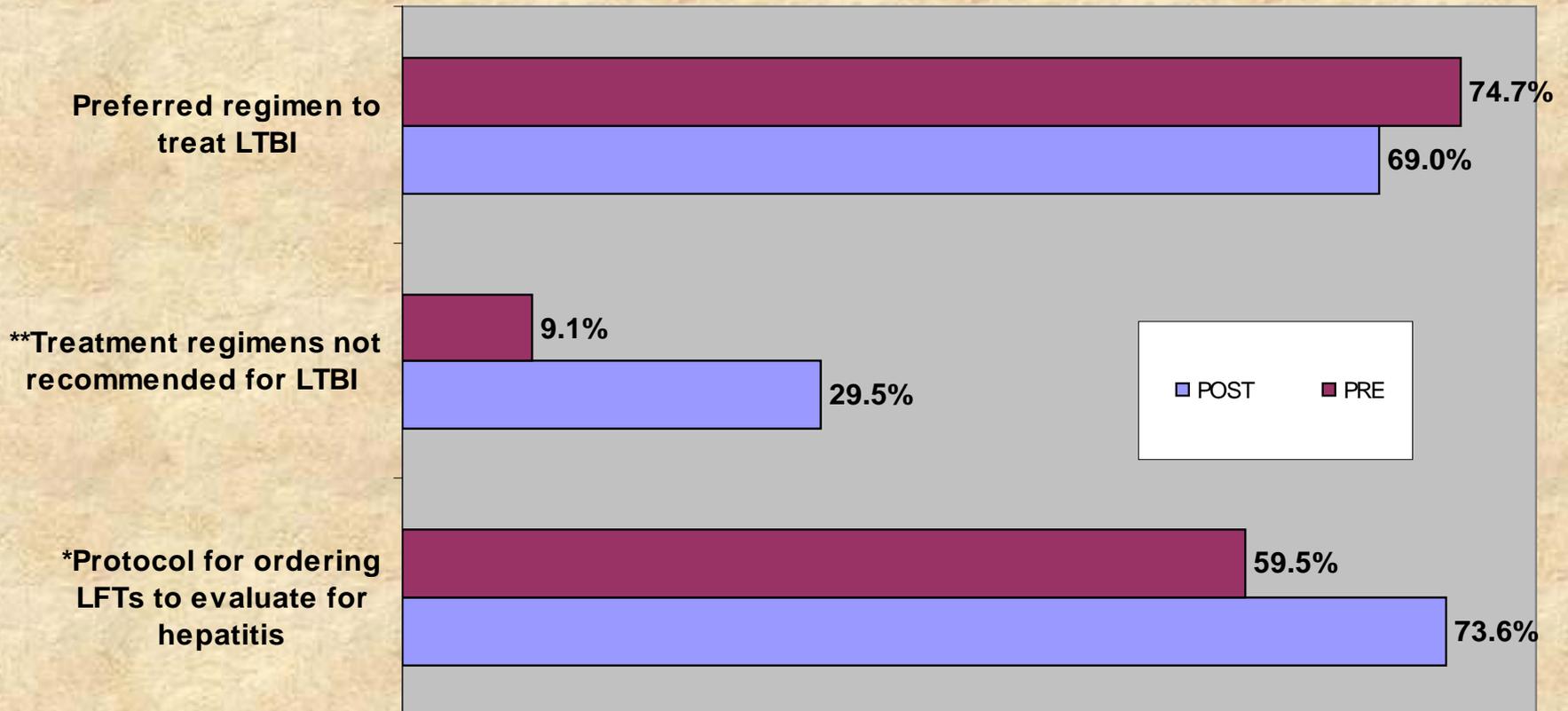
Results: Knowledge Questions: Treating LTBI

% Giving Correct Answer



Results: Knowledge Questions: Treating LTBI

% Giving Correct Answer



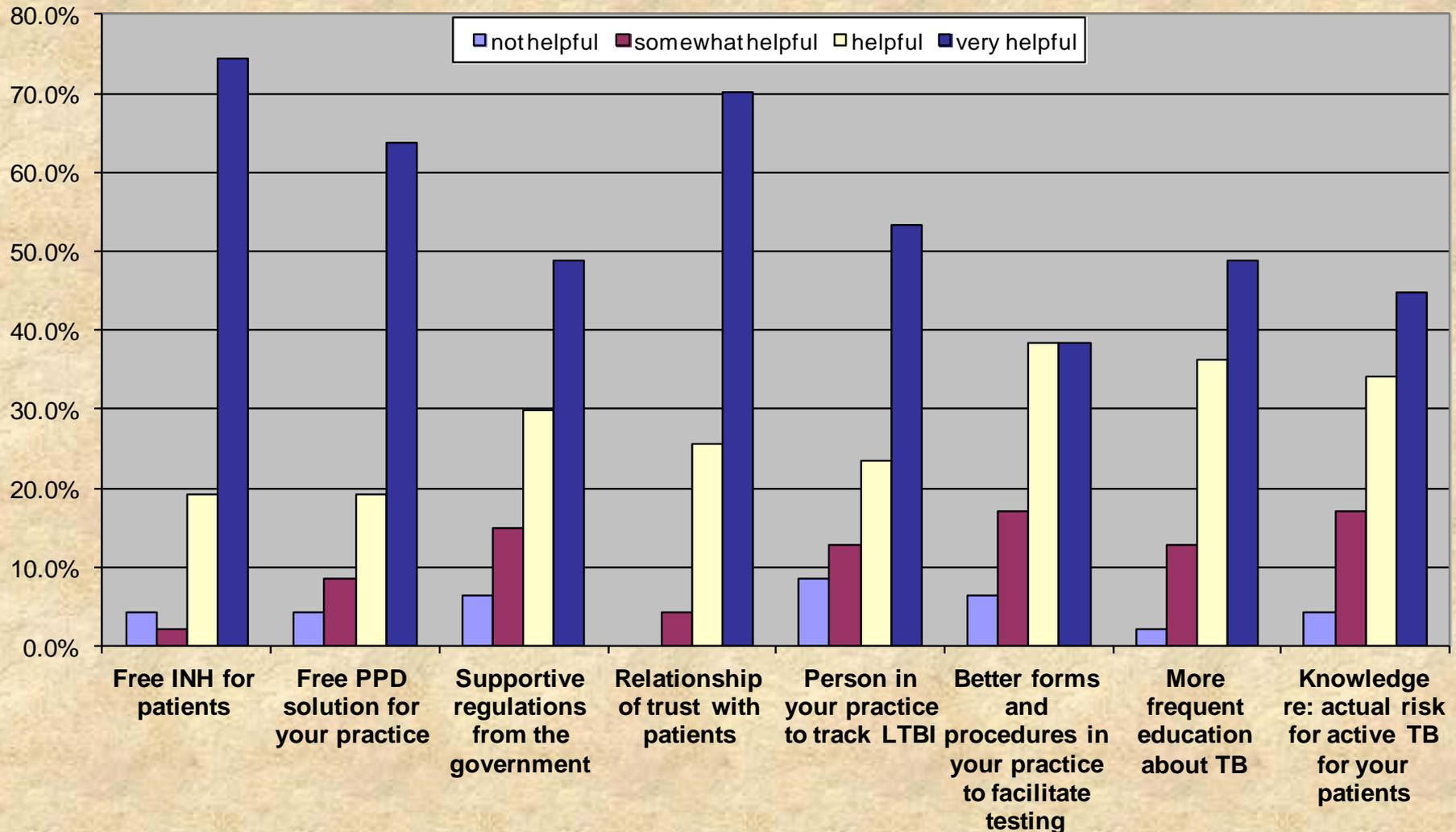
TB Knowledge Questions

- Knowledge Questions. Table shows Odds Ratio (p-value) of each variable based on multivariable analysis using generalized estimating equation (GEE) model with logit link.
 - Intervention: Before (baseline) Vs. After
 - Age: Continuous
 - Practice Type: Private (baseline) Vs. Public
 - Country Residency: US (baseline) Vs. Other
 - TB Training: No Previous Training (baseline) Vs. Former TB Training

	Intervent'n	Age	Practice Type	Country Residency	TB Training
Active TB Symptoms	1.184 (0.59)	0.984 (0.35)	0.927 (0.04)	0.454 (0.46)	0.703(0.44)
Factors for PPD	1.370 (0.27)	0.954 (0.01)	1.402 (0.73)	4.486 (0.20)	1.402 (0.44)
TB Treatment	2.459 (0.01)	0.977 (0.17)	4.963 (0.002)	7.538 (0.01)	0.494 (0.15)

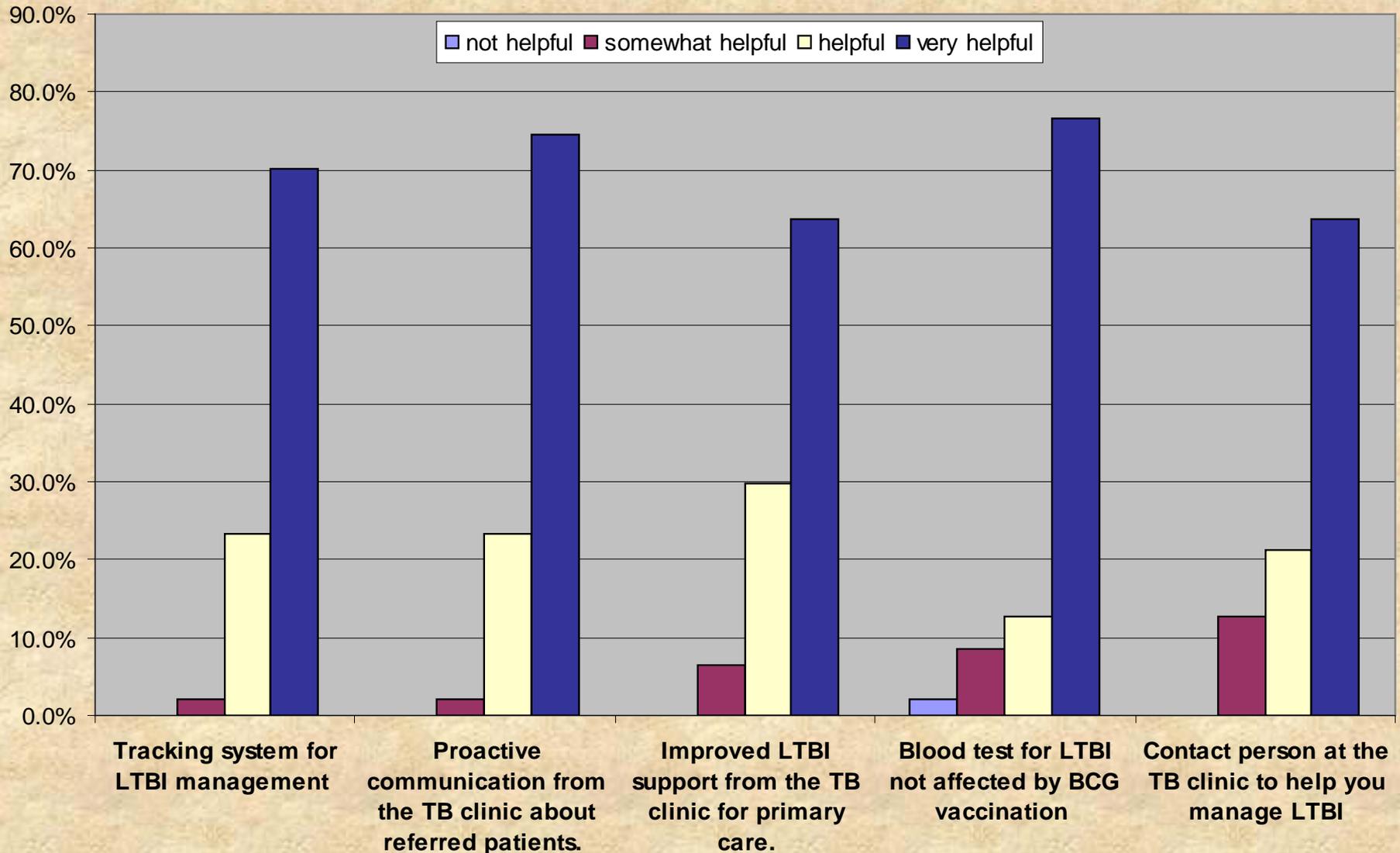
Attitudes and Beliefs

What would be helpful in managing LTBI?



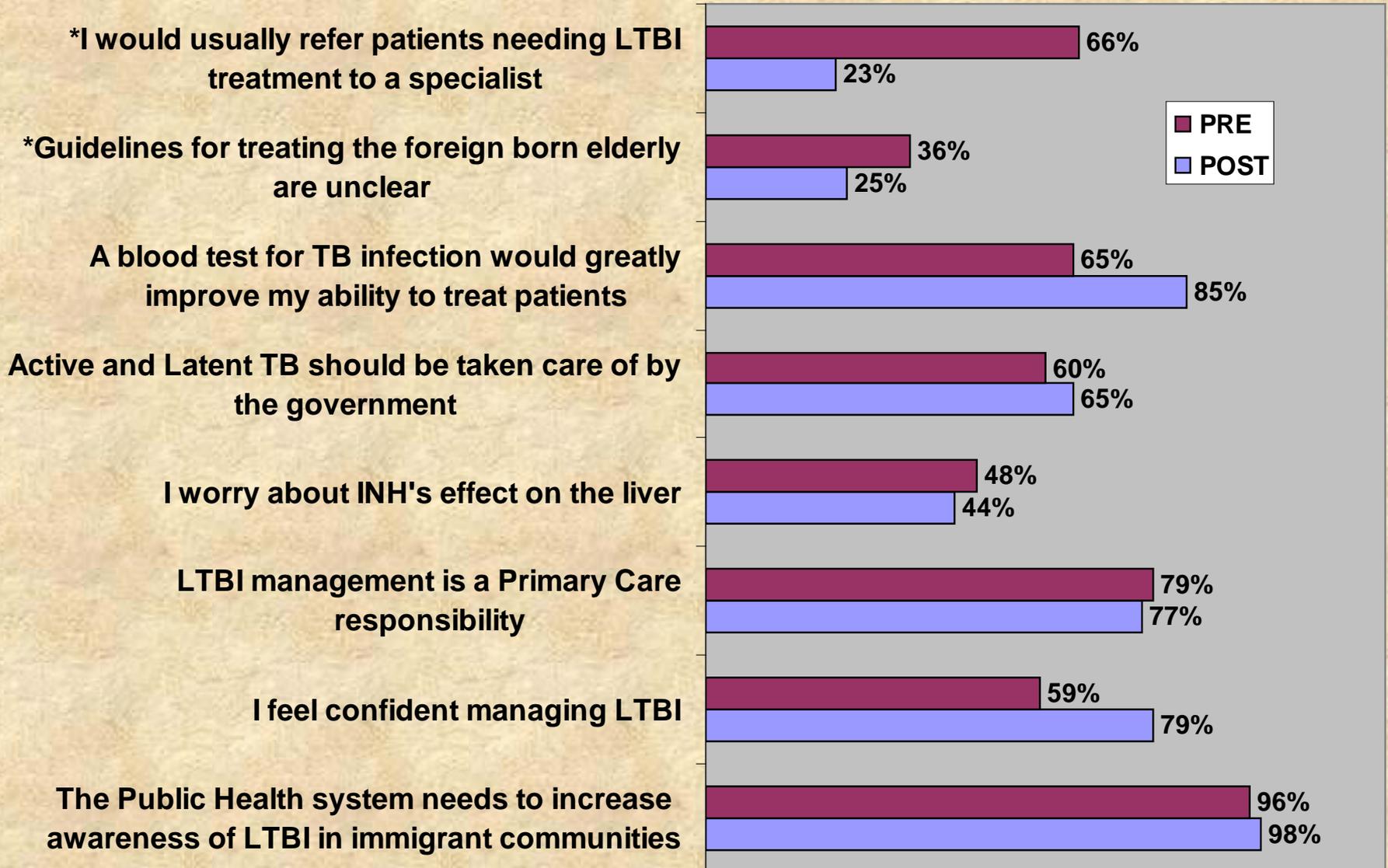
Attitudes and Beliefs

What would be helpful in managing LTBI?



ATTITUDES & BELIEFS

% Choosing Agree to Strongly Agree



ATTITUDES & BELIEFS

Barriers to Managing LTBI in Your Practice

- ❖ Table shows Odds Ratio (OR) and p-values of each variable based on multivariable ordinal logistic regression using baseline data.
 - Age: Continuous
 - Practice Type: Private (baseline) Vs. Public
 - Country Residency: US (baseline) Vs. Other
 - TB Training: No Previous Training (baseline) Vs Former TB Training

	Age	Practice Type	Country Residency	TB Training
Guidelines too rigid	1.030 (0.18)	0.251 (0.01)	0.177 (0.08)	2.149 (0.15)
Productivity pressure	0.992 (0.72)	0.292 (0.02)	0.340 (0.16)	1.732 (0.24)
BCG vaccine prevents accurate Dx	0.986 (0.56)	0.406 (0.10)	0.632 (0.64)	0.618 (0.34)

ATTITUDES & BELIEFS

Indicate how much you agree or disagree

- ❖ Table shows Odds Ratio (OR) and p-values of each variable based on multivariable ordinal logistic regression using baseline data.

	Age	Practice Type	Country Residency	TB Training
Reimbursement for LTBI is not a worry	1.021 (0.16)	1.257 (0.44)	0.992 (0.99)	1.347 (0.62)
Managing LTBI should happen in primary care	1.038 (0.02)	0.883 (0.73)	0.499 (0.28)	1.479 (0.25)
Managing LTBI and TB are government responsibility	0.995 (0.89)	3.207 (0.001)	1.461 (0.69)	0.574 (0.37)
My patients not at high risk for active TB	1.016 (0.42)	0.225 (0.01)	0.449 (0.36)	1.195 (0.71)
LTBI guidelines in FB elderly unclear	1.015 (0.06)	0.262 (0.01)	0.499 (0.47)	0.671 (0.42)
I refer LTBI care to a specialist	1.035 (0.11)	0.469 (0.05)	0.886 (0.89)	1.802 (0.21)

ATTITUDES & BELIEFS

Indicate how much this would help you test for and treat LTBI

- ❖ Table shows Odds Ratio (OR) and p-values of each variable based on multivariable ordinal logistic regression using baseline data.

	Age	Practice Type	Country Residency	TB Training
Free PPD solution	1.009 (0.70)	0.343 (0.01)	2.121 (0.76)	1.151 (0.25)
Free isoniazid	1.004 (0.87)	0.291 (0.09)	1.834 (0.65)	1.009 (0.59)

Factors Preventing LTBI Testing and Treatment

- ❖ “I have too many patients, and too little time to address this. I’ll lose money.”

“Firstly, the BCG does muddy the water. Second, it depends on the age group. If they are already over 35 with a positive PPD, next is the chest x-ray. If they don’t have any symptoms or problems, do you do a PPD? Even if it’s positive you expect the chest (film) to return negative, you’re not going to do anything anyway. So, why do you want a PPD in the first place? And if you expect something in the chest x-ray, why don’t you do that in the first place? If they don’t have pulmonary symptoms and they are fine, you’re not going to preventatively treat them anyway, then why are you going through the procedure if you’re not going to do anything different? I think that’s wasting money, OK?”

San Francisco, Private Practice Physician

Factors Preventing LTBI Testing and Treatment

- ❖ “TB is very rare so LTBI screening is not critical.”

“But, it’s pretty much in my opinion, a waste of money, because I might find 1 out of 200. I would have to screen 200 people before I would find one case. And, most patients would not...I would have to do it as a freebie, cause they’re not going to pay for that...it costs me about \$5.00 for a test.”

Dallas, Private Practice Physician

Phase 2– Findings (n=90)

- ❖ The intervention improved knowledge of CDC/ATS guidelines.
- ❖ Some attitudes toward barriers to implementing routine screening for all immigrants improved, in general there was a ceiling on room for improvement.
- ❖ Other attitudes and features of LTBI management remain unaffected, as would be anticipated given the focus and cognitive nature of the intervention.

Conclusions

- ❖ There are many features of primary care that impact screening and management of LTBI beyond the knowledge of guidelines.
- ❖ Practice size, type, and the consequent resources contribute to a physicians capacity to track and manage LTBI in a busy primary care practice.
- ❖ Private practice physicians are less familiar with current guidelines for treatment, and more concerned about insurance, and reimbursement for the care they provide than salaried public sector clinicians.
- ❖ Educational interventions can improve knowledge of guidelines, but may have little impact on attitudes toward their implementation.
- ❖ Future interventions should consider different approaches to different practice setting and address priority concerns beyond education.

Facilitating Factors

- ❖ “We have a person designated to manage TB screening and compliance.”

“We usually mark one out of nine months or five out of nine months. So, it helps us keep track. ‘OK, you’re almost half way there’, or something. But the forms themselves, the nurses usually take care of them. There’s usually one person at each site.”

Boston, Community Clinic Physician

Facilitating Factors

- ❖ “We have a good relationship with the TB clinic, they help us get INH. We get regular education about TB related topics.”

“We had a Continuing Medical Education program some years back advised of how the Public Health Department works here, and also at previous places where I’ve worked; my perception of the role of the Public Health Department has really been to monitor and manage patients that are PPD positive.”

Dallas-Fort Worth Community Clinic Physician

Other Facilitating Factors

- ❖ “We have developed protocols and forms to make screening routine.”
- ❖ “If patients are uninsured, we can get free screening or INH.”
- ❖ “Disease prevention and health promotion is part of our culture of care.”

Factors Preventing LTBI Testing and Treatment

- ❖ “Most of my patients are positive since they received BCG in their home country.”

“Routinely, we don’t do skin tests in the practice. Yeah, cause my patients are mostly positive.”

Hawaii, Private Practice Physician

Factors Preventing LTBI Testing and Treatment

- ❖ “I have too many patients, and too little time to address this. I’ll lose money.”

“Well the TB skin test, I didn’t routinely do on Medicare age people, unless they are going to nursing home. Because, there is no reimbursement for home-aide care for TB placement unless they have specific symptoms, if they have weight loss, and stuff like that, then we check it. But we cannot do it for just routine physical. Whereas other insurance, we can still do it as a routine physical, they reimburse; Medicare doesn’t reimburse...Medi-Cal, I don’t think they reimburse, that’s even worse than Medicare.”

San Francisco, Private Practice Physician

Factors Preventing LTBI Testing and Treatment

“Q:...If you didn't have to do a two step process but a single blood test, what would you think of that?”

“A: Well, that's a great improvement of course. But it still boils down to what is the significance? How does it affect your management of the old 89 year old lady who's asymptomatic, (with a negative) chest x-ray?”

San Francisco, Private Practice Physician

Other Factors Preventing LTBI Testing and Treatment

- ❖ “TB Clinic rarely communicates with us.”
- ❖ “I don’t have a way to track PPDs, or if patients are compliant taking INH.”
- ❖ “Patients won’t take INH for 9 months.”
- ❖ “The guidelines are confusing, and constantly changing.”